Journal of Physics: Conference Series 2014 vol.490 N1

Zipf exponent of trajectory distribution in the hidden Markov model

Bochkarev V., Lerner E.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

This paper is the first step of generalization of the previously obtained full classification of the asymptotic behavior of the probability for Markov chain trajectories for the case of hidden Markov models. The main goal is to study the power (Zipf) and nonpower asymptotics of the frequency list of trajectories of hidden Markov frequencys and to obtain explicit formulae for the exponent of the power asymptotics. We consider several simple classes of hidden Markov models. We prove that the asymptotics for a hidden Markov model and for the corresponding Markov chain can be essentially different. © Published under licence by IOP Publishing Ltd.

http://dx.doi.org/10.1088/1742-6596/490/1/012008